

Pneumococcal Disease Fact Sheet

1. **What causes Pneumococcal Disease?** - Pneumococcal Disease (PD) is a infection caused by *Streptococcus pneumoniae* bacteria. There are more than 90 *S. pneumoniae* subtypes. Of the subtypes causing invasive disease in adults, 88% are immunized for by the available vaccine. Most subtypes can cause disease, but a small number cause most of the disease. The ten most common subtypes cause 62% of invasive Pneumococcal Disease worldwide.

2. **How does PD spread?** - *S. pneumoniae* is transmitted directly from person to person through close contact via respiratory droplets. The organism frequently colonizes the nasopharynx of healthy people, particularly young children, without causing illness. . PD is a common complication of influenza and measles infection.

3. How serious is PD?

a. PD kills more people in the United States each year than all other vaccine-preventable diseases combined. More than half of these cases occur in adults for whom pneumococcal vaccine is recommended. Young children and the elderly (individuals younger than age five years and older than age 65 years) have the highest incidence of serious disease.

b. Despite appropriate antimicrobial therapy and intensive medical care, the overall case-fatality rate (hospitalized patients that die) for pneumococcal bloodstream infection is about 20% among adults. Among elderly patients, this rate may be as high as 60%.

4. What are the Symptoms of PD?

a. **Pneumonia:** It is estimated that 175,000 hospitalizations due to PD pneumonia (lung infection) occur each year in the United States. The incubation period is short (1-3 days). Symptoms may include abrupt onset of fever, shaking chills, chest pain, productive cough, shortness of breath, rapid breathing and heart rate, and weakness. The over-all fatality rate is 5%-7% and may be much higher in the elderly. Pneumococci account for up to 36% of adult community-acquired pneumonia and 50% of hospital-acquired pneumonia.

b. **Bacteremia:** PD bacteremia (blood stream infection) occurs in about 25%-30% of patients with pneumococcal pneumonia. More than 50,000 cases of PD bacteremia occur each year in the United States and it is the most common clinical presentation among children younger than age two years, accounting for 70% of all invasive disease in this group. The overall case-fatality rate for bacteremia is about 20% but may be as high as 60% among elderly patients.

c. **Bacterial Meningitis:** PD causes 13%-19% of all cases of bacterial meningitis (infection of the covering of the brain or spinal cord) in the United States. There are 3,000-6,000 cases each year. Symptoms may include headache, tiredness, vomiting, irritability, fever, seizures, and coma. Children younger than age one year have the highest rate of approximately 10 cases per 100,000 population. Persons with cochlear implants are also at increased risk. The case fatality rate for PD bacterial meningitis is high (30% overall, up to 80% in the elderly).

d. **Middle Ear Infection:** PD is also a common cause of acute otitis media (middle ear infection). Approximately 28%-55% of such ear infections are caused by pneumococci. In the United States, there are almost 5 million cases of otitis media in children younger than age five years. Middle ear infections are also the most frequent reason for pediatric office visits in the United States, resulting in more than 20 million visits annually.

5. **Is there a treatment for PD?** - Penicillin is the drug of choice for treatment of PD; however, resistance to penicillin and other antibiotics has been on the rise in recent years. A health care provider should always make informed decisions on which antibiotics to use. Further, the increased difficulty of treating this serious bacterial infection makes prevention through vaccination even more important.

6. **How long is a person with PD contagious?** – While the exact period of communicability is not known, it appears that transmission can occur until *S. pneumonia* bacteria are no longer present in respiratory secretions, which usually occurs 24 hours after initiation of effective antibiotic therapy.

7. **Can you get PD more than once?** - Yes. Having been infected with one *S. pneumonia* subtype does not necessarily make the patient immune to other subtypes. Even if an individual has had one or more episodes of invasive PD, he or she still needs to be vaccinated.

8. **Is there a vaccine available to prevent PD?** – Yes.

- a. An improved pneumococcal polysaccharide vaccine (PPV) contains purified protein from 23 types of pneumococcal bacteria (the older formulation contained 14 types).
- b. The pneumococcal conjugate vaccine (PCV) protects against seven of the most common *S. pneumonia* subtypes and is recommended for use in infants and young children (from age six weeks to the 5th birthday). PD rates in children younger than 5 years have declined dramatically since the introduction of the vaccine.

9. Who should get the pneumococcal polysaccharide vaccine (PPV)?

- a. All adults age 65 years or older.
- b. Anyone age two years or older who has a long-term health problem such as cardiovascular disease, sickle cell anemia, alcoholism, lung disease, diabetes, cirrhosis, or leaks of cerebrospinal fluid.
- c. Anyone who has or is getting a cochlear implant.
- d. Anyone age two years or older who has a disease or condition that lowers the body's resistance to infection, such as Hodgkin's disease, kidney failure, nephrotic syndrome, lymphoma, leukemia, multiple myeloma, HIV infection or AIDS, damaged spleen or no spleen, or organ transplant.
- e. Anyone age two years or older who is taking any drug or treatment that lowers the body's resistance to infection, such as long-term steroids, certain cancer drugs, or radiation therapy.
- f. Alaska Natives and certain Native American populations, especially those who live in Arizona, New Mexico, Colorado or Utah.
- g. More recently, pneumococcal polysaccharide vaccine is indicated for adults 19 years of age and older with asthma and cigarette smoking. These groups were added because of evidence of an increased risk of invasive pneumococcal disease.

10. Can pregnant women get this vaccine? - The safety of PPV vaccine for pregnant women has not been studied, although no adverse consequences have been reported among newborns whose mothers were vaccinated with PPV during pregnancy. Women who are at high risk of PD should be vaccinated before becoming pregnant, if possible. Unvaccinated pregnant women who are in a high-risk group should consult with a healthcare professional about getting the vaccine during pregnancy.

11. Who should NOT receive Pneumococcal Vaccine?

- a. Persons who had a severe allergic reaction to one dose should not receive another (such reactions are rare).
- b. Persons who are moderately or severely ill should wait until their condition improves to be vaccinated.

12. For more information about Pneumococcal Vaccination:

<http://www.cdc.gov/vaccines/vpd-vac/pneumo/default.htm>

This fact sheet provides general information. Please contact your physician for specific clinical information.

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